## REMARKS

This amendment is responsive to the Non-Final Office Action mailed on July 24, 2008. Claims 1, 3-8, 10-15, 17-22, 24-29, 31-36, and 38-44 stand rejected. In view of the following remarks, Applicant respectfully submits that this application is in complete condition for allowance and requests reconsideration of the application in this regard.

### Rejections under 35 U.S.C. 103

The Examiner has rejected claims 1, 3-8, 10-15, 17-22, 24-29, 31-36, and 38-42 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0154716 to Erving et al. (*Erving*) in view of U.S. Patent No. 6,907,270 to Blanz (*Blanz*), and in view of U.S. Patent Application Publication No. 2002/0090008 to Cioffi et al. (*Cioffi*). Of these claims, claims 1, 15, and 29 are the independent claims.

With respect to claim 1, the Examiner admits that *Erving* as modified by *Blanz* fails to disclose reducing notches. (Office Action page 4). The Examiner contends that *Cioffi* discloses notch reduction at paragraph [0114] of *Cioffi*. Applicant disagrees for the following reasons. Paragraph [0114] discloses in part "A notch filter 185 may optionally be provided at a location upstream of the receiver's analog filter 172 in order to block energy in frequency bands outside of the subchannels that are of interest to the remote unit." Referencing FIG. 4 of *Cioffi*, the notch filter 185 is placed upstream from the time domain equalizer (TEQ) 174. Applicant's claim 1 recites in part "reducing the number and severity of notches that the TEQ introduces in a transfer function of a shortened main channel in the DMT system." The notch filter of *Cioffi* could not reduce the number of notches introduced by the TEQ since it is upstream from the TEQ.

*Cioffi* further discloses that the notch filter "can help prevent the analog filter from saturating." Therefore moving the notch filter in *Cioffi* to a position downstream from the time domain equalizer 174 would no longer assist in preventing the saturation of the analog filter 172 and therefore would not be desirable by one of ordinary skill in the art. An additional purpose of the notch filter 185 in *Cioffi* is to filter out band energy to allow for lower cost receiver components to be used since it would not be necessary for the receiver to handle as

much energy. *Cioffi*, therefore, fails to even suggest reducing the number of notches introduced by the TEQ, but rather using a notch filter to block energy in frequency bands that are outside of the subchannels that are of interest prior to reaching the components of the remote modem.

Consequently, Applicant submits that *Cioffi* fails to disclose or suggest "reducing the number and severity of notches that the TEQ introduces in a transfer function of a shortened main channel in the DMT system" as recited by Applicant's claim 1, and therefore the combination of *Erving*, *Blanz*, and *Cioffi* also fail to disclose or suggest all of the elements of Applicants claim 1. As such, the Examiner has failed to establish a *prima facie* case of obviousness as to claim 1 and Applicant requests that the rejection for claim 1 be withdrawn.

Claims 3-8 and 10-14, depend from independent claim 1 and are allowable for at least the same reasons stated above. Furthermore, these dependent claims recite unique combinations of elements not disclosed or suggested by *Erving*, *Blanz*, and *Cioffi*. Therefore Applicant respectfully requests that the rejections for these claims also be withdrawn.

With respect to claim 15, similar to claim 1, the Examiner admits that *Erving* as modified by *Blanz* fails to disclose reducing the notches. Claim 15 recites in part "means for reducing the number and severity of notches that the TEQ introduces in a transfer function of a shortened main channel in the DMT system" similar to claim 1. For the same reasons set forth above with respect to claim 1, Applicant submits that claim 15 is also patentable over *Erving*, *Blanz*, and *Cioffi* and respectfully requests that the rejection for claim 15 be withdrawn.

Claims 17-22 and 24-28, depend from independent claim 15 and are allowable for at least the same reasons stated above. Furthermore, these dependent claims recite unique combinations of elements not disclosed or suggested by *Erving*, *Blanz*, and *Cioffi*. Therefore Applicant respectfully requests that the rejections for these claims also be withdrawn.

With respect to claim 29, similar to claims 1 and 15, the Examiner admits that *Erving* as modified by *Blanz* fails to disclose reducing the notches. Claim 29 recites in part "A computer readable medium, having stored thereon computer-readable instructions, which when executed in a computer system, cause the computer system to" "reduce the number and severity of notches that the TEQ introduces in a transfer function of a shortened main channel in the DMT system" similar to claims 1 and 15. For the same reasons set forth above with respect to

claims 1 and 15, Applicant submits that claim 29 is also patentable over *Erving*, *Blanz*, and *Cioffi* and respectfully requests that the rejection for claim 29 be withdrawn.

Claims 31-36 and 38-42, depend from independent claim 29 and are allowable for at least the same reasons stated above. Furthermore, these dependent claims recite unique combinations of elements not disclosed or suggested by *Erving*, *Blanz*, and *Cioffi*. Therefore Applicant respectfully requests that the rejections for these claims also be withdrawn.

The Examiner has rejected claims 43 and 44 under 35 U.S.C § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0163983 to Redferm (*Redferm*) in view of U. S. Patent No. 6,240,129 to Reusens et al. (*Reusens*). On page 12 of the Office Action, the Examiner admits that *Redferm* fails to disclose that "the combined shaped DMT symbol and shaped prefix generate a full rectangle symbol with a length less than or equal to a boundary prefix length" as recited in claims 43 and 44. The Examiner contends that *Reusens* discloses a combined shaped DMT symbol and shaped prefix generate a full rectangle symbol with a length less than or equal to a boundary prefix length. Applicant disagrees for the following reasons.

*Reusens* col. 3, ll. 13-16 cited by the Examiner disclose a cyclic prefix adder being adapted to add a cyclic prefix to the discrete multi tone (DMT) symbols to protect the DMT symbols from intersymbol interference. A cyclic prefix is a repeat of the end of the symbol to which it is being attached. This passage only discloses a DMT symbol, not a shaped DMT symbol as contended by the Examiner. Further the passage only discloses the cyclic prefix added to the DMT symbol, not a shaped prefix. Moreover, *Reusens* col. 4, ll. 48-67 fails to disclose a combined DMT symbol and shaped prefix generating a rectangle symbol with a length less than or equal to a boundary prefix length. Rather this passage discloses increasing the size of the window with a window head and a window tail which are compliments of each other. (*Reusens* col. 4, ll.48-53). As further disclosed in FIG. 4 and col. 10 of *Reusens*, the incoming signal is digitized to include DMT symbols of length H+B+T, which are windowed, where H and T are the head and tail and B is the window body. (*Reusens* col. 10, ll. 5-8). The windowed H+B+T DMT signals are then subjected to a folding processor to generate a folded windowed sample having a length of the original DMT symbol. (*Reusens* col. 10, ll. 11-14) Treating the

DMT signals by the enlarged window combined with the folding process produces equivalent results to a rectangular windowing. (*Reusens* col. 10, ll. 14-16).

Claims 43 and 44 shape the prefix and DMT signal such that the combination of the prefix and DMT signals do not exceed the boundary prefix length. *Reusens* increases the size of the DMT signals by adding a head and a tail, windowing with an enlarged window, then folding the windowed results to obtain the original DMT signal size, or the size that would be less than or equal to the boundary prefix length. For these reasons, Applicant submits that *Reusens* fails to disclose or suggest that "the combined shaped DMT symbol and shaped prefix generate a full rectangle symbol with a length less than or equal to a boundary prefix length" but rather the opposite, namely, adding to the DMT symbol to pass through an enlarged window to later fold to reduce in size.

Therefore the combination of *Redferm* and *Reusens* fails to disclose or suggest all of the elements of Applicants claims 43 and 44. Consequently, the Examiner has failed to establish a *prima facie* case of obviousness to these claims and Applicant submits that these claims are patentable over *Redferm* in view of *Reusens*. Applicant respectfully requests that the rejections for claims 43 and 44 be withdrawn.

## Conclusion

Applicant has made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing amendments to the claims and remarks given herein, Applicant respectfully believes this case is in condition for allowance and respectfully requests allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicant is of the opinion that no additional fee is due as a result of this Amendment. Payment of all charges due for this filing is made on the attached Electronic Fee Sheet. If any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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Date

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